wellcare® information for you about

Sodium & Groundwater

What is Sodium?

Sodium is the sixth most abundant element on Earth and is widely distributed in soils, plants, water and foods. Most of the world has significant deposits of sodium-containing minerals, most notably sodium chloride (salt).

Sodium and chloride occur naturally in water as a result of erosion or salt water intrusion (when salt water from the ocean seeps into underground water supplies). Sodium may reach both ground and surface water supplies as a result of residential, commercial and industrial activity, such as road salting.

What are the health effects of Sodium?

Knowing how much sodium is in your drinking water may be important to your health. Sodium is an essential nutrient and adequate levels of sodium are required for good health. However, too much sodium is one risk factor for hypertension (high blood pressure). Other risk factors for hypertension include family history and being overweight.

For most people, food is the main source of daily sodium intake. Sodium levels in drinking water are usually low and unlikely to cause adverse health effects. Sodium in drinking water is only a health concern when the sodium level is high or when a person's ability to handle sodium decreases.

The U.S. Environmental Protection Agency (EPA) does not mandate a maximum level of sodium permitted in public water supplies. However, the agency has released a Drinking Water Equivalence Level, or guidance level, that recommends sodium levels not exceed 20 parts per million (ppm), in order to protect those individuals who may be susceptible to sodium in drinking water.

Do Water Softeners Contribute to Sodium Levels in Water?

Sodium may be added to water during the water softening process. Hard water is caused by calcium and magnesium and interferes with laundering, dishwashing, bathing and personal hygiene. It can also affect appliances. Hard water is treated using ion exchange, a process that replaces the calcium and magnesium with either sodium or potassium.

Whether water softeners that use sodium chloride cause adverse health effects depends on the amount of sodium added during softening and a person's ability to handle sodium. The chart below shows the amount of sodium added to water during the water softening process, for various levels of water hardness. The last column on the table shows the amount of sodium typically consumed *over the course of a day* by individuals who drink softened water. Keep in mind that the U.S. Food and Drug Administration's definition of a "low sodium" food includes those that contain 140 mg or less *per serving.*

Water Hardness Classification	Definition (mg/L or ppm)	Estimate of sodium added to water during softening (mg of sodium per liter)	mg of sodium in 2 quarts per day (amount usually consumed)
Soft	0-60	0-25	0-50
Moderate	60-120	25-50	50-100
Hard	120-180	50-75	100-150
Very Hard	Over 180	More than 75	More than 150

How do I test for Sodium?

If you have a water softening treatment system that uses sodium and/or anyone in the household is at high risk for hypertension, heart disease or other circulatory ailments, you might wish to test for sodium level of your drinking water. Your local or state health department or water well professional can refer you to state-certified laboratories that can test for sodium.

What are the treatments for Sodium in drinking water?

First, figure out the source of the elevated sodium levels. If water softening equipment is the problem, and your doctor has recommended that you reduce sodium in your diet, simply avoid drinking the softened water. Consider installing a separate bypass faucet or dedicating the cold water faucet in the kitchen to water drawn directly from the well and untreated with softeners.

Another option is to treat the water with a reverse osmosis or distillation system. This equipment can remove sodium added by water softening or from other sources. However, when salt water intrusion is the source of the sodium, it is advised that the well structure be inspected and the source of the salt water identified. Correcting problems to the well structure may be recommended over water treatment. Contact a licensed well professional in your area.

For more information about Sodium

Butkus SN and Hermanson RE. (June 1989). Washington State University Extension. Sodium Content of your Drinking Water. Retrieved on July 25, 2007 from cru.cahe.wsu.edu/CEPublications/eb1525/eb1525.html

U.S. Environmental Protection Agency (EPA). Sodium in Drinking Water. Retrieved on July 25, 2007 from www.epa.gov/safewater/ccl/sodium.html

For more information on your drinking water

Contact your local water well professional or health department for information on ground water in your area. The following websites provide up-to-date information on efforts to protect drinking water supplies and steps you can take as a private well owner. In addition, you may contact the **wellcare· hotline** at **1-888-395-1033**.

Underwriters Laboratories Inc. Drink Well™ Well Water Testing	**www.uldrinkwell.com**
U.S. Environmental Protection Agency	**www.epa.gov**
Water Quality Association	**www.wqa.org**

For more information about wells and other wellcare® publications

wellcare· is a program of the **Water Systems Council (WSC). WSC** is a national nonprofit organization dedicated to promoting the wider use of wells as modern and affordable safe drinking water systems and to protecting ground water resources nationwide. This publication is one in a series of wellcare· information sheets. There were more than 70 available at the time this document was published. They can be downloaded FREE from the WSC website at www.watersystemscouncil.org. Well owners and others with questions about wells or ground water can also contact the wellcare· **hotline** at **1-888-395-1033** or visit www.wellcarehotline.org.

This publication was developed in part under Assistance Agreement No. EM-83331201-0 awarded by the U.S. Environmental Protection Agency. It has not been formally reviewed by EPA. The views expressed in this document are solely those of WSC. EPA does not endorse any products or commercial services mentioned in this publication.